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EXAMINER	
THOMPSON, JAMES A	
ART UNIT	**PAPER NUMBER**
2624	

DATE MAILED: 07/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/834,623	SUZUKI ET AL.
	Examiner	**Art Unit**
	James A. Thompson	2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see page 8, line 14 to page 9, line 17, filed 25 April 2005, with respect to the rejections under 35 USC §112, 2nd paragraph have been fully considered and are persuasive. The rejections under 35 USC §112, 2nd paragraph listed in items 2-3 of the previous office action, dated 17 December 2004, have been withdrawn.

2. Applicant's arguments filed 25 April 2005 have been fully considered but they are not persuasive.

Examiner agrees that Applicant's amendments to the claims overcomes the previously cited prior art. However, additional prior art has been discovered and is cited below. The additional prior art, in combination with the previously cited prior art, fully teaches the present claims. The new grounds of rejection given below are necessitated by the present amendments to the claims.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 3-15 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita (US Patent 5,555,362) in view of Ohsawa (US Patent 4,876,610), Wada (US Patent 5,949,922), and Edgar (US Patent 5,266,805).

Regarding claims 3, 18 and 19: Yamashita discloses an image processing apparatus (figure 1 of Yamashita) comprising an input unit (figure 1(2) of Yamashita) that inputs a binary image as a multi-valued image (column 3, lines 4-6 of Yamashita); a halftone dot image area map creating unit (figure 1(4A) and column 4, lines 36-40 of Yamashita) controlling the image processing apparatus to search for a halftone dot image area in the multi-valued image according to a process comprising recognizing halftone dots in the multi-valued image (column 4, lines 59-64 of Yamashita), and generating a list storing boundary box information (figure 3(30) of Yamashita) as information about each halftone dot in the recognized halftone dot image area (column 4, lines 13-18 and lines 59-64 of Yamashita). The image (figure 3 of Yamashita) is separated into a plurality of boundary boxes, which are stored in memory (column 4, lines 13-18 of Yamashita). The image data type for each bounded region is determined to be either character data or image data (column 4, lines 59-64 of Yamashita). The image are would necessarily be a halftone dot image area since images are printed as a collection of halftone dots.

Yamashita further discloses searching for a line drawing/ character image area in the multi-valued image (column 4, lines 59-61 of Yamashita); and creating a line drawing/character image area map (column 4, lines 13-18 of Yamashita).

Yamashita further discloses a halftone dot image binarizing unit (figure 1(12) of Yamashita) that binarizes an input image

corresponding to the halftone dot image area map and generates a binarized halftone dot image (column 3, lines 25-31 of Yamashita). In order to output the image data corresponding to the halftone dot image area map to a display screen or a printer (column 3, lines 25-31 of Yamashita), binarizing said input image and generating a binarized halftone dot image is inherent. Otherwise, the image data would not be in a form that could be output to the display screen or the printer.

Yamashita further discloses an image combining unit (figure 1(10) of Yamashita) that combines the binarized halftone dot image and the binarized line drawing/character image (figure 6 (60); column 4, lines 5-7; and column 10, lines 11-14 of Yamashita). The image combining unit (layout model storage unit) (figure 1(10) of Yamashita) stores the overall layout model (figure 6(60); column 4, lines 5-7; and column 10, lines 11-14 of Yamashita) that is displayed (column 4, lines 7-8 of Yamashita) and thus combines the binarized halftone dot image and the binarized line drawing/character image.

Yamashita does not disclose expressly that said list is a list of halftone dot information comprising center-of-gravity information about centers of gravity of halftone dots as information about each recognized halftone dot; eliminating an erroneously recognized halftone dot according to a process comprising calculating a halftone dot density in a given area by referring to the center-of-gravity information in the list of halftone dot information, deleting corresponding halftone dot information from the halftone dot information list when the halftone dot density does not meet a given condition, and creating a halftone dot image area map according to the halftone dot information list from which the erroneously recognized

halftone dot has been eliminated; a line drawing/character image area map creating unit that searches for a line drawing/ character image area in the multi-valued image and creates a line drawing/character image area map; that said halftone dot image binarizing unit suppresses input read errors that occur when said input unit inputs the binary image by optimizing a value of a target pixel to be binarized; and a line drawing/ character smoothing unit that smoothes a jaggy contained in an input image corresponding to the line drawing/character area map, and generates a binarized line drawing/character image.

Ohsawa discloses that the average halftone dot density is calculated in a given area defined by a central pixel and surrounding pixels (column 4, lines 39-42 of Ohsawa). If the absolute difference between said average halftone dot density and said central pixel is larger than a pre-defined threshold, then said area is determined to be a line drawing/character area and is thus deleted from the set of halftone dot image areas and incorporated into the mapping of the line drawing/character image area map (figures 5a and 5b and column 4, lines 42-45 and lines 60-66 of Ohsawa).

Ohsawa further discloses a line drawing/character image area detector (figure 1(13) of Ohsawa) that searches for a line drawing/character image area in the multi-valued image and determines which image areas are line drawing/character image areas (column 4, lines 45-51 of Ohsawa).

Ohsawa further discloses a line drawing/character smoothing unit (figure 1(15) and column 3, lines 28-31 of Ohsawa) that smoothes a jaggy contained in an input image corresponding to the line drawing/character area map, and generates a binarized line drawing/character image (column 5, lines 11-18 of Ohsawa).

The purpose of using smaller matrices is to reduce the area of the error dispersion, thereby reproducing characters and lines in a precise manner (column 5, lines 14-18 of Ohsawa). The natural result of this would be to remove jaggy and other artifacts from lines and characters.

Yamashita and Ohsawa are combinable because they are from the same field of endeavor, namely digital image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to delete halftone dot information from the set of halftone dot image areas if a given condition, namely the threshold for the difference between the absolute difference between said average halftone dot density and said central pixel, is met, as taught by Ohsawa, said set of halftone dot image areas being represented by the halftone dot image area map and halftone dot information list taught by Yamashita. Further, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use the line drawing/character image area detector taught by Ohsawa to determine the image areas that are line drawing/character image areas, as taught by Ohsawa, and save said areas in a line drawing/character image area map, thus creating said line drawing/character image area map, as taught by Yamashita. This would then make said line drawing/character image area detector taught by Ohsawa a line drawing/character image area map creating unit. The motivation for doing so would have been that if a halftone image data area does not satisfy said given condition taught by Ohsawa, it is not reasonable to include said halftone dot image data area as part of the halftone dot image data set, but instead as part of the line drawing/character image data set (column 4, lines 49-54 of Ohsawa). Further, it

would have been obvious to a person of ordinary skill in the art at the time of the invention to use the line drawing/character smoothing unit taught by Ohsawa to reduce the jaggy in lines and characters. The motivation for doing so would have been more precisely reproduce characters and lines (column 5, lines 17-18 of Ohsawa). Therefore, it would have been obvious to combine Ohsawa with Yamashita.

Yamashita in view of Ohsawa does not disclose expressly that said list is a list of halftone dot information comprising center-of-gravity information about centers of gravity of halftone dots as information about each recognized halftone dot; eliminating an erroneously recognized halftone dot according to a process comprising calculating a halftone dot density in a given area by referring to the center-of-gravity information in the list of halftone dot information, deleting corresponding halftone dot information from the halftone dot information list when the halftone dot density does not meet a given condition, and creating a halftone dot image area map according to the halftone dot information list from which the erroneously recognized halftone dot has been eliminated; and that said halftone dot image binarizing unit suppresses input read errors that occur when said input unit inputs the binary image by optimizing a value of a target pixel to be binarized.

Wada discloses calculating center-of-gravity information about centers of gravity of halftone dots as information about each halftone dot in the area of an image (figure 12(S5) and column 15, lines 16-20 of Wada); and suppressing input read errors that occur when said input unit inputs the binary image (column 14, lines 20-26 of Wada).

Yamashita in view of Ohsawa is combinable with Wada because they are from the same field of endeavor, namely digital image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to calculate said center-of-gravity information, as taught by Wada, and store said information in the halftone dot information list taught by Yamashita, and use said center-of-gravity information taught by Wada instead of simply the center pixel taught by Ohsawa to calculate the halftone dot density in a given area, as taught by Ohsawa. The motivation for doing so would have been using the center-of-gravity information and basing measurements, such as density, on the center-of-gravity reduces the overall noise in the image (column 14, lines 34-42 of Wada), and thus produces a better result. Further, it would have been obvious to a person of ordinary skill in the art at the time of the invention to suppress input read errors, as taught by Wada, using said halftone dot image binarizing unit, as taught by Yamashita. The motivation for doing so would have been reducing input errors inherently creates a better output image. Therefore, it would have been obvious to combine Wada with Yamashita in view of Ohsawa.

Yamashita in view of Ohsawa and Wada does not disclose expressly eliminating an erroneously recognized halftone dot according to a process comprising calculating a halftone dot density in a given area by referring to said center-of-gravity information in said list of halftone dot information, and creating a halftone dot image area map according to said halftone dot information list from which the erroneously recognized halftone dot has been eliminated; and that said input

read error suppression is performed by optimizing a value of a target pixel to be binarized.

Edgar discloses eliminating an erroneously recognized halftone dot (figure 1(16) of Edgar) according to a process comprising calculating a halftone dot density in a given area by referring to said list of halftone dot information (column 5, lines 63-67 of Edgar), and creating a halftone dot image area map (figure 1(36) of Edgar) according to said halftone dot information list from which the erroneously recognized halftone dot has been eliminated (column 6, lines 46-52 of Edgar); and suppressing input read error by optimizing a value of a target pixel to be binarized (column 6, lines 53-58 of Edgar). By subtracting out the undesirable imperfections from the visual spectra (column 6, lines 53-58 of Edgar), the resulting target pixels, which are to be binarized, are optimized since the best values have been obtained.

Yamashita in view of Ohsawa and Wada are combinable with Edgar because they are from the same field of endeavor, namely digital image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to eliminate erroneously recognized halftone dots, as taught by Edgar, based partly on the center-of-gravity data taught by Wada in the halftone dot information list taught by Yamashita. The motivation for doing so would have been to eliminate or reduce the imperfections present in an image, especially an archival image that may have obtained dust, scratches and other types of debris and imperfections (column 2, lines 64-68 of Edgar). Therefore, it would have been obvious to combine Edgar with Yamashita in view of Ohsawa and Wada to obtain the invention as specified in claims 3, 18 and 19.

Further regarding claim 18: The apparatus of claim 3 performs the method of claim 18.

Further regarding claim 19: The apparatus of claim 3 can be performed by executing a program stored in a computer (column 10, lines 27-32 of Yamashita). Therefore, the limitations of claim 19 are fully embodied in the apparatus of claim 3.

Regarding claim 4: The arguments regarding claim 3 are incorporated herein. Yamashita discloses that said given area is delineated by boundary blocks (figure 3 and column 4, lines 54-58 of Yamashita).

Regarding claim 5: Yamashita discloses generating a list further comprising boundary box information (figure 3(30) of Yamashita), as information about each halftone dot in the recognized halftone dot image area (column 4, lines 13-18 and lines 59-64 of Yamashita). The image (figure 3 of Yamashita) is separated into a plurality of boundary boxes, which are stored in memory (column 4, lines 13-18 of Yamashita). The image data type for each bounded region is determined to be either character data or image data (column 4, lines 59-64 of Yamashita). The image are would necessarily be a halftone dot image area since images are printed as a collection of halftone dots.

Yamashita further discloses that said halftone dot image area map creating unit performs a first process of painting out a boundary box (black lines)(column 3, lines 42-48 of Yamashita) and a second process of painting out a portion expanding from the boundary box (white pixel regions) on the basis of the boundary box information (column 3, lines 42-48 of Yamashita), the boundary box and the portion that have been painted out

being included in the binarized halftone dot image (column 3, lines 54-59 of Yamashita).

Regarding claim 6: Yamashita does not disclose expressly that, when a gap pixel remains after the first and second processes are performed for each of all said center-of-gravity information, said halftone dot image area map creating unit paints out the gap pixel when a number of gap pixel is smaller than a predetermined threshold value.

Ohsawa discloses that varying sizes of matrices are used to define the boundary boxes (column 5, lines 5-10 of Ohsawa). Ohsawa processes the image data in succession (column 3, lines 54-62 of Ohsawa), so there is an inherent overlap between boundary boxes in the image area map. Therefore, any potential gaps between a set of boundary boxes are effectively painted over by said overlap.

Yamashita and Ohsawa are combinable because they are from the same field of endeavor, namely digital image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to paint over gap pixels, as taught by Ohsawa, after performing said first and second processes taught by Yamashita. The motivation for doing so would have been to provide appropriate processing for different image data types (column 5, lines 5-10 of Ohsawa). Therefore, it would have been obvious to combine Ohsawa with Yamashita to obtain the invention as specified in claim 6.

Further regarding claim 7: Ohsawa discloses that said line drawing/character (figure 1(13) of Ohsawa) detects a closed area from the multi-valued image in order to create the line drawing/ character area map (column 4, lines 15-19 and lines 54-59 of

Ohsawa), said closed area corresponding to the line drawing/ character area (column 4, lines 60-63 of Ohsawa).

Regarding claim 8: Yamashita does not disclose expressly that said halftone dot image binarizing unit sets a proximity area close to a target pixel that is included in the input image corresponding to the halftone dot image area map and is to be binarized.

Ohsawa discloses setting a proximity area close to a target pixel that is included in the input image corresponding to the halftone dot image area map and is to be binarized (column 4, lines 35-39 and column 5, lines 19-20 of Ohsawa). Ohsawa teaches a target (center) pixel (column 4, lines 37-39 of Ohsawa) which has a proximity area set around and close to it (column 4, line 37 and column 5, lines 19-20 of Ohsawa). Said area is included in the input image corresponding to the halftone dot image area map (column 4, lines 64-66 of Ohsawa). Said area and said halftone dot image are to be binarized (column 3, lines 25-31 of Ohsawa).

Yamashita and Ohsawa are combinable because they are from the same field of endeavor, namely digital image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to set a proximity area for binarization, as taught by Ohsawa, using said halftone dot image binarizing unit taught by Yamashita. The motivation for doing so would have been to provide appropriate processing for different image data types (column 5, lines 5-10 of Ohsawa). Therefore, it would have been obvious to combine Ohsawa with Yamashita to obtain the invention as specified in claim 8.

Further regarding claim 9: Ohsawa discloses a binary digitizing process that disperses the image data error

throughout the block under consideration, utilizing weighting and normalization coefficients (column 7, lines 21-45 of Ohsawa). This dispersion helps to correct the signal values. The corrected signal values are then compared with a threshold value (column 7, lines 46-50 of Ohsawa). The corrected signal is dependent upon the distribution of pixel values throughout the block and the size of the block itself (figures 7a and 7b of Ohsawa). Adaptively altering the pixel values based on the pixel value distribution in the halftone dot image area and then comparing that with a threshold value is the same effect as adaptively altering the threshold value in a similar manner, but leaving the pixel values static. The results are then binarized and output to a printer (column 7, lines 46-50 of Ohsawa). The process of adaptively determining a threshold can be performed using the halftone dot image binarizing unit taught by Yamashita, as combined in the arguments regarding claim 8, upon which claim 9 is dependent.

Further regarding claim 10: Ohsawa discloses that said halftone dot image binarizing unit changes a value of the target pixel (column 7, lines 23-35 of Ohsawa) on the basis of the distribution (figure 7a-7b and column 7, lines 39-45 of Ohsawa), a changed value of the target pixel being used for binarization (column 7, lines 46-50 of Ohsawa). The process of value changing can be performed using the halftone dot image binarizing unit taught by Yamashita, as combined in the arguments regarding claim 8, upon which claim 10 is dependent.

Further regarding claim 11: Ohsawa discloses that when said halftone dot image binarizing unit detects an inclination in regard of pixel values on the basis of distribution thereof (column 4, lines 55-66 of Ohsawa), the halftone dot image

binarizing unit does not binarize the target pixel in the absence of change of the value thereof. Ohsawa performs binary digitization by altering the pixel value based on an error dispersion calculation (column 5, lines 5-10 and column 7, line 30 of Ohsawa). If there is no change in the value, additional binarization is not required. Any binarization performed by Ohsawa under these conditions is redundant.

Further regarding claim 12: Ohsawa discloses that said halftone image binarizing unit determines whether the value of the target pixel should be increased or decreased on the basis of the distribution. Ohsawa uses weighting functions that vary with location and depend upon the matrix distribution (figures 6, 7a and 7b and column 7, lines 21-32 of Ohsawa).

Further regarding claim 13: Ohsawa discloses that said halftone dot image binarizing unit calculates the changed value of the target pixel from a maximum pixel value available in the halftone dot image area when it is determined that the value of the target pixel should be increased, and calculates the changed value of the target pixel from a minimum pixel value available in the halftone dot image area when it is determined that the value of the target pixel should be decreased (column 4, lines 55-59 and column 7, lines 21-35 and lines 46-50 of Ohsawa). The target (center) pixel value of an image block is either increased or decreased based on the error dispersion calculation, along with the other pixels in said image block (column 7, lines 21-35 of Ohsawa). Ohsawa determines the minimum and maximum values of said image block and compares the difference between the maximum and minimum values in said image block with a threshold value (column 4, lines 55-59 of Ohsawa). The center pixel value is then binarized to either 0 or 255 -

for eight bit image data - based on said comparison with said threshold value (column 7, lines 46-50 of Ohsawa).

Further regarding claim 14: Ohsawa discloses that said halftone dot image binarizing unit obtains a difference between the value of the target pixel and the changed value thereof, and restrains the changed value when the changed value is larger than a given threshold value (column 7, line 30 and lines 49-50 of Ohsawa). Ohsawa calculates the normalized signal error, which is the difference between the original signal value and the corrected signal value (column 7, line 30 of Ohsawa). The value of the corrected signal is restrained since it cannot be greater than the maximum possible pixel value (column 7, lines 49-50 of Ohsawa). The maximum pixel value thus acts as a threshold for the signal values.

Further regarding claim 15: Ohsawa discloses that said halftone dot binarizing unit binarizes original values of target pixels that are not changed and changed values of other target pixels by using a threshold value for binarization (column 7, line 30 and lines 46-50 of Ohsawa). Whether the values of the target pixels have been altered or not, Ohsawa binarizes said target pixels based on a threshold value (column 7, lines 46-50 of Ohsawa). If the error values are zero, then the equation given in column 7, line 30 of Ohsawa will have no effect on said original value. If said error values are non-zero, then said equation will have an effect. Either way, said target pixel value is binarized based on said threshold value.

5. Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita (US Patent 5,555,362) in view of

Ohsawa (US Patent 4,876,610), Wada (US Patent 5,949,922), Edgar (US Patent 5,266,805), and Graham (US Patent 5,222,154).

Regarding claim 16: Yamashita in view of Ohsawa, Wada and Edgar does not disclose expressly that said line drawing/ character smoothing unit counts a number of black pixels in each row or column in a given area of the input image corresponding to the line drawing/character area map, and detects the jaggy contained in the input image on the basis of ratios of black pixels between rows and columns.

Graham discloses a method that counts a number of black pixels in each row or column in a given area of the input image corresponding to the line drawing/character area map, and detecting the jaggy contained in the input image on the basis of ratios of black pixels between rows and columns. Graham teaches looking for changes along the vertical and horizontal directions in order to detect a jaggy (column 11, line 65 to column 12, line 2 of Graham). If a black pixel or a comparatively small number of black pixels are surrounded by white pixels, then the black pixel is considered a jaggy (figures 13 and 16 of Graham). Said black pixel(s) are then removed (figure 13 (1302) of Graham). Also, if a white pixel or a comparatively small number of white pixels are surrounded by black pixels, then said white pixel(s) are painted out.

Yamashita in view of Ohsawa, Wada and Edgar is combinable with Graham because they are from the same field of endeavor, namely digital image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use ratios of black pixels between rows and columns for the purpose of detecting jaggy. The suggestion for doing so would have been to use an alternate jaggy detection and

elimination method, as taught by Graham. Therefore, it would have been obvious to combine Graham with Yamashita in view of Ohsawa, Wada and Edgar to obtain the invention as specified in claim 16.

Regarding claim 17: Yamashita in view of Ohsawa, Wada and Edgar does not disclose expressly setting a mask in the given area to count the number of black pixels in each row or column in said mask, and shifts the mask to count the number of black pixels only in a new row or column that is not included in the mask before shifting, so that the jaggy can be detected by the number of black pixels before and after the mask is shifted.

Graham teaches a shifting area of consideration, which is the same as a mask, for the sake of determining a jaggy (column 12, lines 7-18 of Graham). Said area examines regions for jaggy based on relations between pixel values before and after said area is shifted by a column or a row (column 12, lines 7-18 of Graham). Said area is shifted to further analyze the image data for jaggy (column 12, lines 2-6 of Graham).

Yamashita in view of Ohsawa, Wada and Edgar is combinable with Graham because they are from the same field of endeavor, namely image processing and artifact suppression. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a shifting area of consideration for the jaggy detection and processing. The suggestion for doing so would have been the fact that the area needed to detect jaggy changes as the pixels under consideration change (column 11, line 66 to column 12, line 3 of Graham). Therefore, it would have been obvious to combine Graham with Yamashita in view of Ohsawa, Wada and Edgar to obtain the invention as specified in claim 17.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Thompson whose telephone number is 571-272-7441. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on 571-272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James A. Thompson
Examiner
Art Unit 2624

JAT
27 June 2005

THOMAS D. ~~TOMMY~~ LEE
PRIMARY EXAMINER